

MAPPING AND GIS IMPLEMENTATION OF LAND USE AND LAND COVER CATEGORIES FOR THE ALBEMARLE-PAMLICO DRAINAGE BASIN

ABSTRACT

The Albemarle-Pamlico (A/P) estuarine system in North Carolina is one of the estuaries in the EPA's National Estuary Program. The lack of a current land use/land cover inventory was identified as a critical gap in the A/P Study resource database. At an A/P Study workshop held late in 1987, Landsat Thematic Mapper (TM) digital data were recommended as the most cost effective and practical source for developing an inventory for the 23,000 square mile drainage basin. The Computer Graphics Center (CGC), North Carolina State University, and the North Carolina Center for Geographic Information & Analysis (CGIA) were given responsibility for the development, storage and dissemination of the inventory.

The study area included a portion of Virginia and nearly one-third of North Carolina including almost all of the Tidewater region. CGC had responsibility for analyzing the five Landsat TM scenes needed to cover the area. Digital TM data were converted to a Lambert Conformal Conic projection and classified into 18 land use/land cover classes using a supervised approach. Results of the project included image files in raster format with every pixel classified by land use/land cover category. Classification verification was performed using 1,931 one acre sample sites located on the classified TM imagery and on aerial photography. Class accuracies were 73% or greater for all Level I classes except developed areas which had an accuracy of 46%.

Image data were converted to a format compatible with CGIA's software, filtered using a standard 5X5 mode filter, converted to vector format and integrated with CGIA's database for the A/P drainage basin. Data are georeferenced to the N.C. State Plane Coordinate System and stored as digital ARC/INFO coverages. Land use/land cover data are available from CGIA as map products or in digital format. Final results also include descriptions of methodology and land use/land cover classes as well as classification error matrices for each physiographic province and for the entire study area.